

FACT SHEET

2nd Satellite Navigation User Forum

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Federal Aviation Administration

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The Federal Aviation Administration (FAA) is moving towards a satellite based navigation system. As with any good company, when major issues surface on ongoing programs, the FAA is re-evaluating its plans for its Sat/Nav programs. In an effort to involve the user community in these deliberations, the FAA held its second user forum on April 6 to focus on the results of its alternatives analysis and economic assessment. A third user forum is planned for July 1999 to review recommendations before final decisions are made to shape the future course of the FAA's ongoing Sat/Nav programs.

Historical Navigation Background

In January 1998, the FAA's Joint Resources Council (JRC) approved the SatNav Acquisition Program Baselines for the Wide Area Augmentation System (WAAS) and Local Area Augmentation System (LAAS) programs.

An Investment Analysis Team (IAT) was convened at the direction of FAA senior management to examine various SatNav alternatives and recommend a navigation system architecture and funding profile for FAA-provided navigation services.

- At the First Satellite Navigation Users Forum on February 25th, 1999, the FAA presented its plans for conducting the analysis and invited user and industry feedback.
- The investment analysis recommendation will be presented to FAA senior management for approval in the summer of 1999.

2nd FAA Satellite Navigation User Forum

In continuation of the effort to actively engage the user community in the investment analysis process, an FAA sponsored 2nd Satellite Navigation User Forum was held.

- The 2nd SatNav User Forum was held on April 6, 1999, from 8:30 a.m. to 12:00 noon, at the FAA Headquarters Building (3rd Floor Auditorium), 800 Independence Avenue, SW, Washington, DC.
- Follow-up meetings to allow for more detailed small group discussions were held in the afternoon with the SatNav IAT.
- A 3rd public meeting, sponsored by the SatNav IAT, is scheduled for July 1999.

Forum Goals

- Present information on preliminary results of the performance assessment and on refinements to the alternatives based on user feedback.
- Provide a plan for user and industry input to help validate costs, benefits, and risk for the SatNav business case.
- Continue to engage the user community in the SatNav investment analysis process.

Presentation Topics of Discussion at the 2nd Satellite Navigation User Forum

The public meeting provided an opportunity for organizations to review the preliminary results of the alternatives analysis led by the MITRE Corporation, Center for Advanced Aviation System Development (MITRE/CAASD) and FAA/ASD Systems Engineering Technical Assistance (SETA).

- **Alternatives Analysis**
MITRE/CAASD's task is to perform a technical and architectural evaluation of SatNav alternatives and recommend a set of alternatives and options to be evaluated further by the IAT

sub-teams. MITRE/CAASD have described four alternatives and back-up capabilities to meet future NAS navigation requirements.

Alternative 1: Provides no wide area augmentation for GPS; VORs and DMEs are maintained. Precision approach evaluations will be the basis for considering ILS and/or LAAS.

Alternative 2: Provides wide area augmentation to GPS for en route through nonprecision approach. Precision approach will also be evaluated as in Alternative 1. Many of the VORs and DMEs are to be maintained.

Alternative 3: Adds a vertical guidance capability to WAAS to support precision approaches up to Cat I, allowing possible reductions in ILSs. Precision approach will be evaluated considering WAAS/LAAS and ILS.

Alternative 4: Provides a robust implementation of WAAS and LAAS.

Alternatives 2 through 4 consider several variations of backup capability, including VOR/DME, ILS, Loran-C, as well as interference resistant GPS avionics/antennas. Preliminary performance estimates were presented for each of the alternatives.

MITRE/CAASD presented preliminary results of the performance assessment, including a SatNav availability analysis and a coverage analysis of the ground-based nav aids. Performance assessment results are presented as the basis for the estimates of assets (e.g., numbers of geostationary satellites and WAAS reference stations), quality (e.g., satellite restoration assumptions, software levels), and operational capability (e.g., coverage and operational restrictions). Various tradeoffs were considered, including effects of recent developments in WAAS ionospheric monitoring algorithms, and the effects of possible enhancements to the GPS constellation size and maintenance.

- **Economic Analysis**

The investment analysis team solicited input and feedback on the economic analysis plan.

- Approaches and assumptions for evaluating the costs and benefits were discussed.
- These analyses will be discussed further at the third and final public meeting, scheduled for July 1999.

- **Risk analysis**

- Approaches for evaluating the risks were discussed.

- **Decision Criteria**

- The decision criteria that will be used to develop the final recommendation was presented.

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More information on the SatNav Program may be obtained at the ASD web site.

www.faa.gov/asd